CHAPTER 3
ACCIDENTS AND SAFETY ISSUES

Accident History

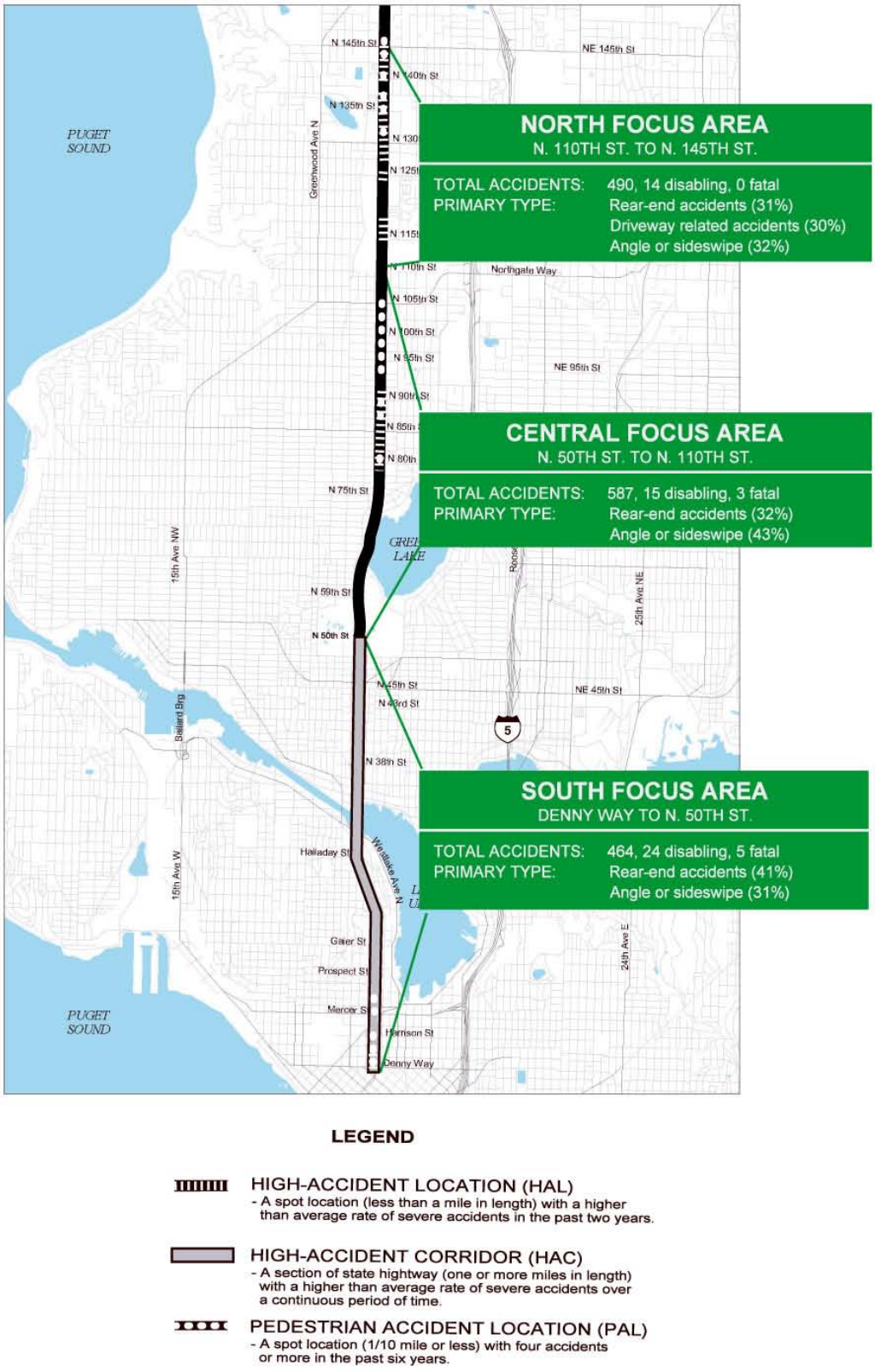
The following information is a summary of the accidents that have occurred between 01/01/99 and 12/31/01 along the SR 99 North study corridor. Between the north end of the Battery Street Tunnel and N. 145th Street, a total of 1,541 accidents occurred between January 1, 1999 and December 31, 2001. During this time period, eight fatalities and 53 disabling accidents were part of this total[1]. The South Focus Area had five fatality accidents and 24 disabling accidents. The Central Focus Area had three fatality accidents and 15 disabling accidents. The North Focus Area had no fatality accidents and 14 disabling accidents.

The Washington State Department of Transportation (WSDOT) has special designations for locations with a higher than average number of severe accidents and has a special designation for pedestrian accident locations. High Accident Locations (HALs) are spot locations less than a mile long that have experienced a higher than average rate of severe accidents during the previous two years. High Accident Corridors (HACs) deal with sections of state highways one or more miles long, which have a higher than average number of severe accidents over a continuous period of time. Pedestrian Accident Locations (PALs) are spot locations (0.10 mile or less) that have four or more accidents in a six-year period. Figure 3-1 shows the locations that have been designated HALs, HACs, and PALs on the study corridor.

The SR 99 North study corridor has been divided into three study focus areas based on unique road design characteristics and adjacent land uses. The South Focus Area extends from the north end of the Battery Street Tunnel to N. 50th Street. The Central Focus Area extends from N. 50th Street to N. 110th Street. The North Focus Area extends from N. 110th Street to N. 145th Street.

1. Note: The information provided in this summary is a complete accident data set from 1999 to 2001. This information differs slightly from the accident information provide in SR 99 Corridor Study Fall 2002 newsletter. At the time of publication of the Fall 2002 newsletter, only partial data were available for 2001.

Figure 3-1
High Accident Areas



Based on WSDOT classifications for 2002, the study corridor has one HAC located in the South Focus Area from the north end of the Battery Street Tunnel (MP 32.50) to the vicinity of N. 50th Street (MP 36.00). Six HALs are located throughout the corridor, one in the South Focus Area, one in the Central Focus Area, and four in the North Focus Area. Table 3-1 lists the identified HALs.

Table 3-1
High Accident Locations within the SR 99 North Study Corridor

Begin MP	End MP	Streets
South Focus Area		
32.44	32.53	North end of the Battery Street Tunnel to Denny Way ramps
Central Focus Area		
37.18	37.80	South of N. 80th St. to south of N. 90th St.
North Focus Area		
38.97	39.22	N. 115th St. to south of N. 125th St.
39.26	39.51	N. 125th St. Vicinity
39.58	40.18	South of N. 127th St. to north of N. 137th St.
40.21	40.59	South of N. 140th St. to north of N. 145th St.

The study identified 12 PALs located throughout the corridor. Table 3-2 lists the PALs and the focus area where they occur.

As previously stated, eight fatality accidents occurred within the study corridor limits. Of the eight fatality accidents, four involved a vehicle hitting either a pedestrian (3) or bicyclist (1), two were vehicles hitting fixed objects while the driver was under the influence of alcohol, and two were rear-end accidents. Of the rear-end accidents, one was caused by following too close and the other was caused by the failure to yield the right-of-way. Two of the fatalities were at the N. 90th Street signal and involved a vehicle hitting either a pedestrian or bicyclist.

Table 3-2
Pedestrian Accident Locations in the SR 99 North Study Corridor

Begin MP	End MP	Streets
South Focus Area		
32.54	32.65	Vicinity of Denny Way on-ramp to Harrison St.
32.87	32.97	Vicinity of Mercer St. to Valley St.
Central Focus Area		
37.22	37.22	N. 80th St.
37.58	37.71	N. 88th St. to N. 90th St.
37.86	38.03	N. 93rd St. to N. 96th St.
38.08	38.15	N. 97th St. to N. 98th St.
38.22	38.27	N. 100th St. to N. 101st St.
38.38	38.47	N. 103rd St. to N. 105th St./Northgate Way
North Focus Area		
39.71	39.80	N. 130th St. Vicinity
39.97	40.09	N. 135th St. to N. 137th St.
40.21	40.30	South of N. 140th St. to North of N. 141st St.
40.37	40.54	North of N. 143rd St. to North of N. 145th St.

A description of high accident areas and primary accident types and causes is described below by study focus area (South, Central, and North).

South Focus Area

Traffic typically travels at speeds exceeding the 40 mph posted speed limit by 10 to 20 mph. This fact, coupled with high traffic volumes and numerous right turns to and from intersecting side streets, lead to many of the accidents on the SR 99 North Study Corridor in the South Focus Area. These conditions contributed to the many rear-end and enter-at-angle/turning related accidents in the corridor. Just over 54% of the accidents in this focus area were rear-end (41%) or enter-at-angle/turning related (13%).

During peak periods, major congestion hot spots—at Raye Street and Halladay Street intersections in Queen Anne and Bridge Way exit ramp in Wallingford/Fremont—produce significant back-ups and numerous accidents. Sixty accidents occurred in the vicinity of the Raye and Halladay Street intersections. These conditions are projected to get much worse over the next 15 years.

The majority of the existing travel lanes in this area are narrow, especially on the Aurora Bridge (George Washington Memorial Bridge), contributing to sideswipe accidents and reducing traffic capacity. Just over 17% of the traffic accidents in the South Focus Area were sideswipe accidents, with 10% of those accidents occurring on the Aurora Bridge. The Aurora Bridge also lacks a center barrier to separate opposing traffic typically traveling at speeds exceeding the speed limit. The lack of a center barrier increases the risk for crossover/head-on traffic accidents.

High Accident Corridor

The South Focus Area included the third worst HAC in Washington State[2] and the only HAC in the study corridor. As noted previously, a HAC is a section of state highway one or more miles long, which has a higher than average number of severe accidents over a continuous period of time. The HAC is located from the north end of the Battery Street Tunnel (MP 32.50) to the vicinity of N. 50th Street (MP 36.00). See Figure 3-1.

This HAC had a total of 426 accidents including 5 fatalities. There were 23 disabling and 64 evident-injury accidents with a total of 288 passenger injuries. A total of 94 of the accidents occurred in the 0.65-mile section of SR 99 North between the Raye/Halladay Street intersections (immediately south of the Aurora Bridge) and the north end of the Aurora Bridge. The primary accident categories and contributing causes are shown in tables 3-3 and 3-4.

Table 3-3
Accident Type within the High Accident Corridor

Accident Type	Number
Rear-end	185
Side-swipe	72
Fixed object	67
Entering-at-angle or turning related	60
Pedestrian or bicycle	11
Other[1]	31

1. Other includes parked cars, cross overs, rollovers, etc.

2. Based on a cost/mile/year from 1996 – 2000 information developed by the Transportation Data Office.

Table 3-4
Primary Contributing Cause of Accidents within the High Accident Corridor

Primary Contributing Cause	Number
Failure to yield the right-of-way	72
Following too close	64
Inattention	60
Speeding	35
Under the influence of alcohol or drugs	25
Other	170

High Accident Location

The South Focus Area has one HAL from the north end of the Battery Street Tunnel (MP 32.44) to Denny Way ramps (32.53) (see Table 3-1). A total of 58 accidents occurred along this section of SR 99 North. One fatality, two disabling, and 10 evident injury accidents occurred in this section. The primary types of accidents were rear-end (15), sideswipe (14), and fixed object accidents (23). The primary contributing causes were failure to yield (nine accidents), speeding (12 accidents), and following too close (six accidents). Alcohol was identified as the contributing cause in six of the accidents.

Pedestrian Accident Locations

The South Focus Area has two PALs as shown in Table 3-2 and Figure 3-1.

One of the PALs begins in the vicinity of the Denny Way on-ramp (MP 32.54) and extends to Harrison Street (MP 32.65). From 1996 through 2001, a total of four pedestrian accidents occurred at this location including one fatality. Two of the accidents had evident injuries and one was disabling. No contributing circumstances were identified for the accidents.

The other PAL begins in the vicinity of Mercer Street (MP 32.87) and extends to Valley Street (MP 32.97). A total of three accidents occurred in this area. Two of the accidents were disabling and one had a possible injury. No contributing circumstances were identified for the accidents.

Central Focus Area

High traffic volumes and speeding motorists – especially between N. 38th Street and Green Lake Drive N., contribute to the many accidents that occur in the Central Focus Area. Between 1999 and 2001, 19 pedestrian accidents occurred in this area. The

majority of travel lanes are narrow, contributing to accidents and reducing traffic capacity. Many accidents were associated with turning movements occurring either in or adjacent to the center-turn lane.

High Accident Locations

The Central Focus Area has one HAL from south of N. 80th Street to south of N. 90th Street. A total of 265 accidents occurred within this HAL. There were 184 individual person injuries in this section including two fatalities, seven disabling injuries, and 35 evident injury accidents.

The majority of accident types involved entering-at-angle or turning vehicles (110 accidents). Within this accident total, 82 involved left-turning vehicles, 23 were entering-at-angle and five were right turning.

The high number of accidents involving left turns is consistent with the left turns at signals throughout the section and the open/unrestricted median present from N. 86th to N. 90th Street.

Pedestrian Accident Locations

Six pedestrian accident locations (PALs) occurred in the Central Focus Area as shown in Table 3-2 and Figure 3-1. Many of the accidents were due to inattentive drivers turning their vehicle.

The first PAL is at the intersection of N. 80th Street (MP 37.22). Two evident injury accidents occurred at this intersection. One accident cited failure to yield the right-of-way to a pedestrian as the contributing cause. Inattention was the contributing cause cited for the second accident.

The second PAL is between N. 88th Street (MP 37.58) and N. 90th Street (MP 37.71). Nine accidents occurred in this area. The accidents included one fatality, two disabling injuries, eight evident injuries, and one possible injury. Failure to yield the right-of-way to a pedestrian was cited as the contributing cause in four of the accidents. Three accidents involved vehicles hitting a pedestrian while turning right. Two accidents involved vehicles hitting a pedestrian while turning left.

The third PAL is between N. 93rd Street (MP 37.68) and N. 96th Street (MP 38.03). Five accidents occurred in this area: one disabling injury, two evident injuries, and two possible injuries. Inattention was cited as the contributing cause in two of the accidents. Two accidents involved vehicles hitting a pedestrian while turning right.

The fourth PAL is between N. 97th Street (MP 38.08) and N. 98th Street (MP 38.15). Three accidents occurred in this area, two were evident injury accidents and one was a possible injury accident. No contributing circumstances were identified for the accidents.

The fifth PAL is between N. 100th Street (MP 38.22) and N. 101st Street (MP 38.27). Six accidents occurred in this area: one fatality, one disabling injury, two evident injuries, and two possible injuries. Failure to yield the right-of-way to a pedestrian was cited as the contributing cause in four of the accidents. Three accidents involved vehicles hitting a pedestrian while turning left. One accident involved a vehicle hitting a pedestrian while turning right.

The sixth PAL is between N. 103rd Street (MP 38.38) and N. 105th Street/Northgate Way (MP 38.47). Seven accidents occurred in this area: four evident injuries, one disabling injury, and two possible injuries. Inattention (one accident), failure to yield the right-of-way to a pedestrian (one accident), and running a red light (one accident) were cited as contributing causes. Three accidents involved vehicles hitting a pedestrian while turning right.

North Focus Area

The existing travel lanes in the North Focus Area are narrow, which contribute to accidents and reduce traffic capacity. Numerous sideswipe and angle accidents were associated with turning movements occurring either in or adjacent to the center-turn lane. Between 1999 and 2001, 18 pedestrian accidents occurred in this area.

High Accident Locations

Four of the high accident locations were located in the North Focus Area (Table 3-1). These four are described below. The primary types of accidents that occurred in these High Accident Locations (HALs) were (in no particular order) entering-at-angle or turning related, rear-end, and driveway related.

N. 115th Street (MP 38.97) to South of N. 125th Street (MP 39.22)

A total of 72 accidents occurred in this section from 1999 to 2001. There were 75 person injuries in this section including 16 evident injury accidents. The primary types of accidents were entering-at-angle or turning related accidents (23), rear-end (22), and driveway related (11).

Failure to yield the right-of-way was the primary contributing cause and accounted for 28 of the accidents.

The high number of accidents is consistent with roadway sections with an open/unrestricted median and a high number of access points.

N. 125th Street Vicinity (MP 39.26 to MP 39.51)

A total of 77 accidents occurred at this HAL location. There were 61 person injuries in this section including three disabling and six evident injury accidents. The primary types of accidents included driveway related accidents (22), rear-end accidents (22), and entering-at-angle or turning related (12).

Failure to yield the right-of-way was the primary contributing cause and accounted for 34 of the accidents.

These accident trends are consistent with the high number of access points that are located south of N. 125th Street.

South of N. 127th Street (MP 39.58) to North of N. 137th Street (MP 40.18)

A total of 179 accidents occurred in this section of SR 99 North. There were 134 person injuries including four disabling and 16 evident-injury accidents. The primary accident types included driveway (42), entering-at-angle or turning related (49), rear-end (52), sideswipe (17), and pedestrian and bicycle accidents (12).

The primary contributing causes included: failures to yield (68), inattention (21), following too close (20), running a red light (13).

The primary accident types and contributing causes are consistent with areas that have a high number of access points, open un-restricted median, and traffic congestion.

South of N. 140th Street (MP 40.21) to North of N. 145th Street (MP 40.59)

The northern end of this HAL is outside of the study limits of this project. The accident data below only include accidents up to N. 145th Street (MP 40.47).

A total of 140 accidents occurred in this section including five disabling injury and 12 evident injury accidents. There were 96 person injuries in this section. The primary accident types included rear-end (42), driveway related (39), and entering-at-angle or turning related (36).

The major primary contributing causes were failures to yield the right-of-way (59), following too close (18), and inattention related (12).

The primary accident types and contributing causes are consistent with areas that have a high number of access points, open/un-restricted median, and traffic congestion.

Pedestrian Accident Locations

Four of the pedestrian accident locations (PALs) occurred in the North Focus Area as shown in Table 3-2 and Figure 3-1. The contributing cause of the majority of these accidents was a driver's failure to yield right of way to a pedestrian.

The first PAL is located in the vicinity of N. 130th Street (MP 39.71). Three accidents occurred at this location: one evident injury and two possible injuries. Failure to yield the right-of-way to a pedestrian was cited as the contributing cause in two of the accidents. Inattention was cited as the contributing cause in one of the accidents. Two accidents involved vehicles hitting a pedestrian while turning right.

The second PAL is located between N. 135th Street (MP 39.97) and N. 137th Street (MP 40.09). Seven accidents occurred in this area: two disabling injuries, one evident injury, and four possible injuries. Failure to yield the right-of-way to a pedestrian was cited as the contributing cause in four of the accidents. Inattention was cited as the contributing cause in two of the accidents. Four accidents involved vehicles hitting a pedestrian while turning right. One accident involved a vehicle hitting a pedestrian while turning left.

The third PAL begins south of N. 140th Street (MP 40.21) and ends north of N. 141st Street (MP 40.30). Six accidents occurred in this area: three disabling injuries, one evident injury, and two possible injuries. Inattention was cited as the contributing cause in one of the accidents. Failure to yield the right-of-way to a pedestrian was cited as the contributing cause in three of the accidents.

The fourth PAL begins north of N. 143rd Street and ends north of N. 145th Street. Four accidents occurred in this area: one disabling injury, two evident injuries, and one possible injury. One accident involved a vehicle hitting a pedestrian while turning right. No contributing circumstances were identified for the accidents.

NOTE: A complete and detailed set of accident data is available upon request from the WSDOT, Planning and Policy Office at (206) 464-1260.